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TOURISM CARRYING CAPACITY ASSESSMENT IN THE MEDITERRANEAN COASTAL TOURIST DESTINATIONS

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INTRODUCTION

Tourism is one of the most important economic activities worldwide, with a high and steady growth rates of around 5% *per annum*. The number of tourists has risen from 594 million in 1996 to 700 million in 2000, and it is expected that it will to rise to 1 billion in 2010. In the European Union (EU) countries, tourism is also one of the strongest economic sectors. The estimates for 1999 show that it has generated US$ 1,262 billion of GDP, with the share in the total ranging from 10.4 % in Luxembourg to 22.7% in Spain. The number of tourists in the Mediterranean region increased from 117 million in the mid eighties to 180 million in 2000, and it is expected to grow to 175-340 million in 2025 (Grenon & Batisse 1989). Tourism is important contributor to the national economies. The share of tourism in GDP of particular countries in the region is relatively high. (in Spain it is 8%, in Tunisia 7.5%, in Greece 7%, in Cyprus 22%, in Malta 24%, etc.). Foreign currency earnings contribute to reducing trade deficits in a number of countries. Positive contribution of tourism to national economies is accompanied by some negative trends in the coastal resource use. Tourism industry is intensive user of coastal land, while regional tourism capacities are spatially highly unequally distributed. There are coastal regions with high concentrations of tourism activity (the case in EU Mediterranean countries), while in some coastal areas tourism is almost non-existent (several countries in the South of the region).

TOURISM AND COASTAL AREAS

Tourism development is adding to the already existing pressures in coastal areas. Population densities (resident plus tourist population) are increasing in the tourist coastal regions during seasonal peaks. In the Mediterranean, the density increases range from 765% in Monaco, 383% in Malta and 207% in France, to 157% in Italy. Coastal urban tourist agglomerations are particularly exposed to these pressures. Other negative impacts of tourism development in coastal areas include: reduction of water resources and their pollution; land pollution caused by inappropriate disposal of solid waste; marine pollution caused by discharges of untreated waste water; loss of space that could be used for other productive activities; biodiversity degradation; loss of habitats; coastal erosion caused by the construction of inappropriate marine structures; increased urbanisation; etc. Many negative social impacts are evident too, such as loss of local traditions; abandonment of traditional economic activities creating mono-cultural economic development; breaking up of social structure; excessive immigration, etc.

The sectoral coastal activities (urbanisation, industry, tourism and recreation, fisheries and fish farming, energy production and transportation) produce combined environmental impacts resulting in marine pollution; air pollution; loss of marine

resources; loss of natural land resources and land degradation; destruction of historic settlements and architectural heritage; loss of public access to the coast; noise and congestion. In the areas designated for tourism, as demand rises, coastal user conflicts increase and greater stress is placed upon the environment on which it depends (Trumbic 2004).

It is now widely acknowledged that Integrated Coastal Zone Management (ICZM) is an efficient tool for sustainable coastal development. If successfully applied, ICZM could help in reducing or eliminating pollution, rectifying other impacts, and preventing these occurring in the future. ICZM could be defined as a continuous, proactive and adaptive process of resource management for environmentally sustainable development of coastal areas. Fundamental to ICZM is the comprehensive understanding of the relationships between coastal resources, their uses and mutual impacts of development on the economy and the environment. These relationships need to be understood and expressed not only in physical and environmental terms, but also in economic, institutional and legal terms. ICZM is not a substitute for sectoral planning; on the contrary, it focuses on the linkages between sectoral activities to achieve more comprehensive goals. As coastal resources are used simultaneously by the different economic and social sectors, integrated management can only be accomplished when all these uses, users and relationships are clearly known.

SUSTAINABLE TOURISM

Among many definitions of sustainable tourism, one which says that sustainable tourism development pertains to all forms of development and management of tourism activity that respect the environment, protect long-term natural and cultural resources, and are socially and economically acceptable and equitable, covers the widest scope. It could also be said that sustainable tourism "…meets the needs of present tourists and host regions while protecting and enhancing opportunity for the future. It is envisaged as leading to management of all resources in such way that those economic, social and aesthetic needs can be fulfilled while maintaining cultural integrity, essential ecological processes and life support systems" (Council of Europe 1997).

Coastal tourism requires large tracts of land for its development, and this land needs to be very close to the coastline. Coastal vegetation, wetlands, lagoons and other environmentally sensitive areas very often create a physical obstacle to coastal tourism development. Construction of tourism facilities very often results in linear coastal development. Policies to mitigate problems that tourism generates in the coastal environment should rise above the traditional physical planning approaches. ICZM, as an approach that is beyond strictly sectoral realm, could be highly instrumental in providing opportunities for effective integration of tourism in coastal development policies.

TOURISM CARRYING CAPACITY ASSESSMENT

The estimation of a number of tourists an area can accommodate without causing environmental damages, or tourism carrying capacity assessment (TCCA), has recently become an important issue for sustainable tourism development. TCCA should be considered neither as a scientific concept nor a formula for obtaining an

exact number of tourists. It should be considered only as a flexible management tool for sustainable tourism development that allows for optimum level of capacity in a certain area. The World Tourism Organisation (WTO) was the first to propose a workable definition of TCCA, which has been adopted by many, including the Priority Actions Programme (PAP/RAC) of UNEP/MAP. It states that TCCA is "...the maximum number of people that may visit a tourist destination at the same time, without causing destruction of the physical, economic and socio-cultural environment and an unacceptable decrease in the quality of visitors' satisfaction" (PAP/RAC 1997).

Practically, the first guidelines for TCCA, not only in the Mediterranean region, were prepared by PAP/RAC as a result of experiences gained in the preparation of the pilot TCCA studies in Croatia, Greece and Egypt (PAP/RAC 1997). The specific focus of the guidelines was on coastal areas. Afterwards, the guidelines were applied in a number of demonstration sites in the Mediterranean (Lalzi Bay in Albania, Malta, and Rimini in Italy). The guidelines were conceived as a response to the growing need to assess the carrying capacity for tourism. The document was addressed to decision-makers, professionals and the public involved in the tourism planning. They were also addressed to physical planners and coastal managers. Hence the need to integrate the TCCA procedure with the process of ICZM.

MAJOR PARAMETERS FOR TCCA

The main common features of the Mediterranean coastal environment which directly affect the process of carrying capacity assessment for tourism are: sensitive ecosystems, specific climate, permeable soils, closeness of the shores of the Mediterranean basin, cultural heritage, local traditions and behaviour of communities. All these specific factors have to be taken in consideration when TCCA is being carried out. The TCCA takes in consideration three main groups of parameters: physical-environmental; socio-demographic; and political and economic:

- The physical and environmental parameters refer to all components of the natural environment as well as to the infrastructure systems. These components are ecological capacity, the natural heritage capacity, length of the coastline, climate, natural resources, etc. As these components are easy to measure, their numerical values should be determined. The capacity of the elements of infrastructure systems, such as water supply, sewerage, electricity and gas networks, transportation, as well as public services such as post and telecommunications, health, law and order, banks, shops, etc. could be calculated only as an orientation. Their physical capacity could be flexible if influenced by political and economic decisions such as investments, tax allowances, subsidies, etc.
- The socio-demographic parameters refer to local communities, tourist population, and their interrelationships. While the demographic parameters are easy to calculate, social ones are more difficult to measure. Political and economic decisions may affect some of the socio-demographic parameters such as, for example, migration policies.
- The political-economic parameters primarily refer to the possible investments and other economic measures employed to stimulate tourist development. Although these parameters are somewhat corrective in relation to socio-demographic and physical-environmental ones, sometimes they might have a decisive impact on the actual carrying capacity. If, for example, a decision is taken by the government to

invest in local infrastructure in order to stimulate tourism development, then when carrying capacity is being calculated, the planned infrastructure capacities should be taken in consideration, and not the existing ones. Every attempt should be made towards the quantification of these parameters.

The PAP Guidelines for TCCA propose that the preparation of study be conducted in five main phases:

1. Collection and analysis of documentation and mapping (boundaries of the tourist destination area; general characteristics of the tourist destination (region) and its development; tourism appeal and attractions; tourism, economy and population; state of documentation; additional collection of data).
2. Analysis (typology of the tourist destination; relationship of the tourist destination to its wider environment; stated limitations or controls; evaluation of tourism resources, tourism demand and tourist product; alternative solutions).
3. Preparation of the tourism development options (preparation of alternative scenarios; analysis of scenarios; selection of the most suitable scenario).
4. Calculation of TCCA (tourism development model design; calculation of carrying capacity; instructions for the application of TCCA).
5. Application, monitoring and evaluation. (PAP/RAC 1997)

MEDITERRANEAN EXPERIENCES IN TCCA

Throughout the world, examples of the implementation of TCCA are scarce. The known examples include cases in Bermuda, Barbados, U.S. Virgin Islands, Galapagos, Costa Rica, Australia, La Reunion, Seychelles, etc. Most of these cases refer to the protected areas or the islands, where conducting a TCCA could be considered as a relatively simple task (Trumbic 2004). In the Mediterranean, PAP/RAC has performed a number of studies, starting in early nineties. Then, the pilot studies in the islands of Vis and Brijuni in Croatia, and the northeastern part of the island of Rhodes were carried out. In mid to late nineties, two studies were prepared (Fuka Matrouh in Egypt, and Malta) while the Lalzi Bay (Albania) study was initiated. More recently, several local authorities in Spain and Italy have prepared TCCA studies (Calvia, Rimini and Elba). Currently, there are several initiatives to start new studies in Italy (Oristano, Cilento). Most of these experiences were presented and analysed in the *Guide to Good Practice in Tourism Carrying Capacity Assessment* (PAP/RAC 2003).

Experience shows that, although the concept of carrying capacity for tourism is an attractive one, practical approaches to actually defining it are met with a number of difficulties. Some consider that TCCA's major output should be a precise 'number' followed by the strict rules that would regulate the number of tourists in a certain regulation. This may be possible, but only in almost extreme circumstances, such as in the case of highly sensitive protected areas where there are strict management rules in place. Most other, more moderate, followers of TCCA consider that it should be only a management tool that would guide tourist development in certain area. Therefore, TCCA should be a guiding tool for implementing the strategy of sustainable tourism development only, while the quantifications should be made whenever possible. There is enough evidence that TCCA is particularly important for the implemented in the coastal areas, because it is the area where most of the tourism development takes place, where development expectations in many countries are at the highest level, but

also the area where natural systems are extremely sensitive. TCCA should be closely linked to the Integrated Coastal Zone Management.

Some of the lessons learned from the hitherto application of TCCA are the following:

- highly developed tourism areas should choose the 'bottom-up' decision-making process;
- less developed tourism areas should opt for a 'top-down' approach;
- the best results are achieved in middle-sized areas (micro-regions or sub-regions within a country);
- the selected areas should have precise administrative boundaries because it facilitates implementation;
- use of indicators of sustainable development should be encouraged, particularly for the analysis of tourism development scenarios;
- identification and selection of tourism development scenario are crucial steps in the TCCA process;
- public participation and public awareness are crucial to accept the preferred scenario; and
- the integration of TCCA with other forms of planning, ICZM or statutory planning, is important because it provides the necessary legal framework for TCCA.

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